APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,155	05/23/2000	Michael R. Krause	10991833-1	4285

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EXAMINER
DINH, DUNG C

ART UNIT	PAPER NUMBER
2152	

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/578,155	KRAUSE ET AL.
	Examiner	Art Unit
	Dung Dinh	2152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 August 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-45</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-45</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/4/05</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

A request for continued examination under 37 CFR 1.114,

including the fee set forth in 37 CFR 1.17(e), was filed in this

application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the

fee set forth in 37 CFR 1.17(e) has been timely paid, the

finality of the previous Office action has been withdrawn

pursuant to 37 CFR 1.114. Applicant's submission filed on

6/30/05 has been entered.

Claims 1-45 are pending for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which
forms the basis for all obviousness rejections set forth in this
Office action:

> (a) A patent may not be obtained though the invention is
> not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject
> matter pertains. Patentability shall not be negatived by
> the manner in which the invention was made.

Claims 1-45 are rejected under 103(a) as being unpatentable

over Wilson et al. US patent 6,738,821 and further in view of

William Shay "Understanding Data Communications and Networks".

As per claim 1, Wilson teaches a source and destination

resource comprising:

a source multiplexing units of work into a serial unit of

work [serialized and encapsulated - see col.17 lines 30-37] in a

defined order [sequence number - see col.17 lines 45-56] and

transmitting the serial unit of work over a communication fabric;

and

a destination receiving the serial unit of work, multiplexing

the serial unit of work and providing a NAK for a unit of work

received ahead of its defined order [when a sequence number gap is

detected - see col.17 line 68 to col.18 line 10];

wherein the source and destination together implement a

reliable datagram service (col.17 lines 49-55 "data stream"

service).[1]

Wilson does not specifically disclose a source buffer holding

unacknowledged packet and not yet transmitted packets. However

this element is inherent in the teaching of Wilson. However this

feature is well known in the art as part of a sliding window

protocol. Shay described well-known sliding window protocol

similar to that described by Wilson. Shay teaches providing a

buffer [fig.5.7 p.261] holding packets not yet acknowledged

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[1] As explained in the prior office action, Wilson's "data stream" service is
equivalent to applicant's "reliable datagram" service.

[fig.5.7 frames between W and w+i-1] and packets not yet

transmitted [fig.5.7 frames from w+i-1 onward]. Shay teaches

maintaining not yet acknowledged packets in the buffers so that

they can be resend [see page 264 3rd paragraph].

Wilson specifically disclose using sliding window [col.18

lines 17-18]. Hence, Wilson inherently has a buffer function as

claimed. Furthermore, it would have been obvious for one of

ordinary skill in the art to have hold not yet acknowledged

packets and not yet transmitted packets in the source buffer

because it would have enabled efficient retransmission the

packets.

As per claim 2, Wilson does not specifically disclose

providing ACK for each unit of work (packet) successfully

received. Providing ACK for every packet received is simpler to

program and it would have enabled the sender to promptly know

which packet was successfully received. However, providing ACK for

every packet would generate more traffic than providing an ACK for

a set of packets. Hence, providing ACK for every packet received

or for a set of packets is matter of design choice and would have

been obvious variation from the teaching of Wilson as a whole.

As per claim 3, Wilson teaches providing ACK for a set unit

of work which were successfully received col.17 lines 57-62].

As per claim 4, Wilson teaches the source responding to the NAK to retransmit all unacknowledged units of work col.18 line 12-17].

As per claim 5, Wilson does not specifically disclose selective retransmitting unacknowledged units of work. It is apparent that Wilson is implement a Go-back-N sliding protocol [see Wilson col. 18 lines 1-17]. Shay discloses using Selective Repeat protocol is more efficient than Go-Back-N protocol in network that is not reliable [see Shay p.270 last paragraph]. Hence using selective retransmission would have been obvious over the teaching of Wilson. It would have been obvious for one of ordinary skill in the art to use selectively retransmission of unacknowledged packets because it would have reduced bandwidth usage.

As per claim 6, Wilson teaches including protocol header col.17 lines 3844, 50-56].

As per claim 7, Wilson teaches including sequence number field col.17 lines 52-56].

As per claim 8, Wilson can detect when there a gap in the sequence, hence it is inherent that Wilson system known the expected next sequence number in order to detect the gap.

As per claim 9, the limitation recited is an inherent characteristic of the sequence number. It is an inherent

characteristic of the sequence number that a number received that

is smaller than a currently expected number is from a duplicate

transmission.

As per claims 10 and 11, Wilson does not specifically

disclose silently drop or sending ACK for duplicate unit of work

(packet). Silently drop the packet would reduce network bandwidth

usage. However, sending the ACK response would ensure that the

sender receive a positive response to each packet that was

transmitted. Hence, Silently drop the duplicate packet or

responding with an ACK would have been a matter of design

choice because they achieve essentially the same result.

As per claim 12, Wilson does not specifically disclose

sending a NAK if a packet is determined to be invalid. However, it

would have been obvious to one of ordinary skill in the art to

provide a NAK to the sender when the packet is corrupted or

invalid so that the sender know to retransmit that packet.

As per claim 13, the recited limitation is an inherent

characteristic of the sequence number. It is inherent that a

packet containing sequence number larger than the expected next

sequence number is a packet received ahead of its defined order.

As per claims 14-15, Wilson teaches the NAK indicates to the

sender to send packets with sequence number equal to or greater

than the next expected sequence number col.18 lines 29]. Wilson

does not teach providing the expected next sequence number in the

NAK response. Wilson teaches to put the sequence number of the

last successfully received sequence number in the NAK response

[col. 18 line 5]. Providing the expected sequence number or the

last successfully received sequence number are clearly obvious

variation of each other because both would achieved essentially

the same result - that is notifying the sender the starting

sequence number to begin retransmission. With the last

successfully received number, the sender would retransmit starting

with the next sequence number. With the expected sequence number,

the sender would retransmit starting with the expected sequence

number. Both methods would achieve essentially the same result in

essentially the same way.

As per claim 16, Wilson teaches dropping the unit of work

that is received ahead of its defined order col.18 lines 1012].

As per claim 17, Wilson does not teach temporarily keeping

the unit of work that was received ahead of its order after

verifying that the unit is valid. It would have been obvious for

one of ordinary skill in the art to keep valid packet even through

it was received ahead of its order because it would have reduced

bandwidth usage by enabling the system to implement a

retransmission scheme of only the missing packets instead of

retransmitting all packets starting from the missing packet.

As per claim 18, it is rejected under similar rationale as for claim 1 above.

As per claim 19, it is rejected under similar rationale as for claims 6-8 above.

As per claims 20-21, they are rejected under similar rationale as for claims 14-15 above.

As per claim 22, it is rejected under similar rationale as for claim 16 above.

As per claims 23-24, they are rejected under similar rationale as for claim 17 above.

As per claims 25, it is inherent that a source device can also function as a destination device and vice versa depending upon the direction of the data transfer.

As per claims 26-45, they are method claims corresponding to the system claims 1-25. Hence they are rejected under similar rationales as for claims above 1-25. Regarding claim 44, it is an inherent characteristic of any transmission system that a sender produces a unit of work (data to be transmit) and the destination consumes the unit of work (receiving the data).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Dinh
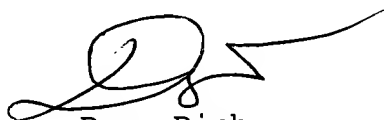
whose telephone number is (571) 272-3943. The examiner can normally be reached on Monday-Friday from 7:00 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached at (571) 272-3949.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dung Dinh
Primary Examiner
September 30, 2005